

Climate Change Adaptation: Stormwater Management and Aquatic Ecosystem Impacts Workshops

March 25th – 26th at the Hilton Inn, Burlington, VT

The Lake Champlain Basin Program will host two climate change-focused workshops March 25-26, 2014 at the Hilton Hotel in Burlington, VT. The March 25th workshop will focus on stormwater management, while the March 26th workshop, concurrent with the New England Association of Environmental Biologists (NEAEB) Annual Meeting, will focus on ecosystem impacts and aquatic invasive species threats to Lake Champlain.

The stormwater management workshop is designed for those looking to gain a better understanding of climate change implications for regional management strategies. The target audience includes regional planners, stormwater engineers, municipal workers and conservation district managers. The goal of this workshop is to identify and review sound management tools that will adapt to a changing environment and provide a broad overview of stormwater strategies around the Basin. Topics that will be covered include: Green Infrastructure Recommendations, Applying Low Impact Design Standards in the Champlain Basin, and a roundtable discussion focusing on stormwater management with respect to climate change. An opening plenary will be given by Dr. Lesley-Ann Dupigny-Giroux, Associate Professor at the University of Vermont and the Vermont State Climatologist. Dr. Dupigny-Giroux will give an overview of climate change scenarios and how they will impact Lake Champlain.

The workshop focused on climate change impacts on Lake Champlain's Aquatic Ecosystem is designed to provide a better understanding of how climate change may impact native aquatic and invasive species management strategies in our region. The target audience includes watershed associations and conservation and resource managers from around the region. This workshop will identify sound management tools that can be applied in a changing environment, and provide a broad overview of aquatic invasive species (AIS) pathways and threats to Lake Champlain. Topics that will be covered include: Predicted Climate Impacts on Native Aquatic Species, Climate Change Preparation for AIS and a roundtable discussion focusing on AIS management tools. An opening plenary presentation will be given by Dr. Curt Stager, Professor of Environmental Science at Paul Smith's College, and a renowned expert on climate change. Dr. Stager will give an overview of climate change scenarios and how they will impact Lake Champlain. Following the workshop, a joint LCBP-NEAEB networking reception and poster session will be at ECHO Lake Aquarium.

Registration: FREE! Please contact Stephanie Castle, scastle@lcbp.org if you would like to participate in this workshop. A buffet lunch and refreshments will be provided at no cost. Seating is limited; the workshop will be limited to 50 participants.

Please consider registering for the New England Association of Environmental Biologists (NEAEB) meeting held March 26-28 at the Hilton in Burlington. Registration is only \$70 for 3 days. For more information: <http://www.epa.gov/region1/neaeb2014/index.html>

3/25 Climate Change Adaptation and Stormwater Management in the Lake Champlain Basin

Time	Green Mountain Rooms B + C	Session Information
8:00-9:00	Registration	
9:00-10:00	Plenary- “Understanding local and regional climate change: Implications for water resource management in the Lake Champlain Basin”	Dr. Lesley-Ann Dupigny-Giroux, UVM and Vermont State Climatologist
10:00-10:30	Break	
10:30-12:00	Findings, Issues and Recommendations from Green Infrastructure Mike Winslow (LCC): <i>Building Community Flood Resilience: Lessons from Irene</i> Stephanie Hurley (UVM): <i>Ecological Landscape Solutions</i> Julie Moore (Stone Env): <i>Stormwater Master Planning around the Basin</i>	Moderator: Justin Kenney, VT DEC GOAL: Green Infrastructure Recommendations for Climate Change
12:00-1:00	Lunch Buffet	
1:00-3:00	Boots on the Ground: Applying Low Impact Design Standards (LIDS) in the Champlain Basin Padraic Monks (VT DEC): <i>Vermont Stormwater Manual Update</i> Emily DeBolt (LGA): <i>Low Impact Design in the Lake George Watershed</i> Megan Moir (City of Burlington): <i>College Street Stormwater Retrofit Project Update</i> Tom Baird (Barton & Loguidice): <i>Lake George Case Studies: Green Infrastructure, Cold Weather & Transportation Projects</i>	Moderator: Jenn Callahan, VTrans GOAL: Management Strategies that Work in the Lake Champlain Basin
3:00-3:30	Break	
3:30-5:00	Roundtable- Climate Adaptation and Stormwater Management in the Lake Champlain Basin <u>Panel:</u> Kevin Farrington (City of Plattsburgh) Tom DiPietro (City of South Burlington) Amy Macrellis (Stone Environmental)	Moderator: Becky Tharp, Sea Grant GOAL: Suite of Management Tools for Stormwater/Climate
5:00	Meeting Adjourns	

Climate Change Adaptation and Stormwater Management Sessions

9:00-10:00 Plenary: “Understanding local and regional climate change: Implications for water resource management in the Lake Champlain Basin.” Dr. Lesley-Ann Dupigny-Giroux will give an overview of local and regional climate shifts, providing some background science to better understand the impacts. She will outline how climate change may alter management needs, with specific implications for water resource managers in the greater Lake Champlain watershed. Her talk will provide fundamental climate change science for the rest of the workshop.

10:30-12:00 Findings, Issues and Recommendations from Green Infrastructure

Moderated by Justin Kenney, Green Infrastructure Coordinator for Vermont Department of Environmental Conservation

This session will focus on climate-related green infrastructure recommendations. How can green infrastructure be used to better prepare for future climate shifts? What have we learned from past storm events? What will green infrastructure look like in 10 years?

Mike Winslow (LCC) will present on Lessons Learned from Irene, which will focus on good shoreline management practices to keep in mind to prepare for the next big storm. Dr. Stephanie Hurley (UVM) will provide an overview of ecological landscape design solutions for sustainable stormwater management. Julie Moore (Stone Environmental) will highlight her recent work in the northern Lake Champlain region focusing on stormwater master planning.

1:00-3:00 Boots on the Ground: Applying Low Impact Design Standards (LIDS) in the Champlain Basin

Moderated by Jenn Callahan, Operations Stormwater Technician for the Vermont Agency of Transportation

How is green infrastructure being applied in the Champlain Basin? This session will focus on project outcomes from around the basin, with speakers sharing their insights for how to apply low impact design standards to prepare for future storm events. Padraic Monks (VT DEC) will discuss progress made on the Vermont Stormwater Manual. Emily DeBolt (LGA) will present recent sustainable stormwater project outcomes from Lake George. Megan Moir (City of Burlington) will share highlights from the College Street stormwater retrofit project completed last year. And Tom Baird (Barton & Loguidice) will show how pervious pavements in Lake George can prevent cold weather storm damage.

3:30-5:00 Climate Adaptation and Stormwater Management in the Lake Champlain Basin

Moderated by Becky Tharp, Land Use Planning and Water Quality Educator at Lake Champlain Sea Grant

This roundtable discussion with Kevin Farrington (City of Plattsburgh), Tom DiPietro (City of South Burlington) and Amy Macrellis (Stone Environmental) will focus on how cities around Lake Champlain can adapt to climate change. Panelists will share stormwater project successes, failures and constructive advice to prepare for the next big storm. What are the best tools for success? What are some complications? The result of this discussion will be a suite of management tools for stormwater operators to prepare for the effects of a changing climate.

3/26 Climate Change Adaptation: Impacts on Lake Champlain's Aquatic Ecosystem

Time	Seasons on the Lake Room	Session Information
9:00-10:00	Registration/NEAEB Exhibits	
10:00-11:00	Plenary- "Climate Change in the Champlain Basin"	Dr. Curt Stager, Paul Smith's College
11:00-12:00	<p>How Can AIS Management Be Prepared for Climate Change? Facilitated by: Ellen Marsden (UVM) and Mark Malchoff (Lake Champlain Sea Grant)</p> <p>GOAL: Preparation tools for climate change</p>	
12:00-1:00	<p><i>Lunch Buffet</i> <i>(NEAEB starts at 1 pm)</i></p>	
1:00-3:00	<p>Predicted Impacts on Native Aquatic Species: How to Manage Climate Change in Lake Champlain</p> <p>Tim Mihuc (SUNY/LCRI): <i>Macroinvertebrates and Climate Change</i> Jason Stockwell (UVM): <i>Impacts of Climate Change on Food Web Structure</i> Dan Isaak (USFS): <i>Modeling the Effects of Climate on Fish Communities</i></p>	<p>Moderator: Bill Ardren, USFWS</p> <p>GOAL: How to Apply Management Tools in the Champlain Basin</p>
3:00-3:30	<i>Break</i>	
3:30-5:00	<p>Roundtable- ANS Management Tools: What's Working, What's Not?</p> <p><u>Panel:</u> Emily DeBolt (LGA) Eric Holmlund (Paul Smiths) Matt Probasco (VT DEC)</p>	<p>Moderator: Meg Modley, LCBP</p> <p>GOAL: Suite of ANS Management Tools</p>
5:00-5:30	<i>Walk to ECHO Lake Aquarium for NEAEB Poster Session</i>	
5:30-7:30	Poster Reception/Networking at ECHO Lake Aquarium	Co-Sponsored by NEAEB and LCBP

Climate Change Adaptation: Impacts on Lake Champlain's Aquatic Ecosystem

10:00-11:00 Plenary: "Climate Change in the Champlain Basin." Dr. Curt Stager will provide an overview of climate impacts on the local and regional level. He will use cutting edge research to illustrate how more frequent storm events, warmer winters and rising temperatures may impact both native and invasive aquatic species. Drawing from his 2010 Nature Conservancy report, Dr. Stager will discuss what we may expect to see in the next several years.

11:00-12:00 Discussion: How Can AIS Management Prepare for Climate Change?

Facilitated by Dr. J. Ellen Marsden, Fisheries Professor, University of Vermont and Mark Malchoff, Extension Program Leader and Aquatic Resource Specialist, Lake Champlain Sea Grant

How will climate change impact invasive species? How can we adapt our management strategy to prepare for these changes? Ellen Marsden (UVM) will investigate possible tools for resource managers to use to prepare for future events. Mark Malchoff (Sea Grant) will add to the discussion by providing the latest research on how climate changes may affect regional resource management plans.

1:00-3:00 Predicted Impacts on Native Aquatic Species: How to Manage Climate Change in Lake Champlain

Moderated by Bill Ardren, Senior Fish Scientist, US Fish & Wildlife Service

How will climate change impact native fisheries? Tim Mihuc (SUNY Plattsburgh/LCRI) will present data from his latest research on Adirondack macroinvertebrates and possible climatic impacts. Jason Stockwell (UVM) will discuss food web dynamics and provide updates from the Rubenstein Lab at UVM. Dave Isaak (USFS) will provide an overview of climate impacts on native fisheries, with a fresh perspective from the Rocky Mountains.

3:30-5:00 ANS Management Tools: What's Working, What's Not?

Moderated by Meg Modley, Aquatic Nuisance Species Coordinator, Lake Champlain Basin Program

This roundtable discussion will focus on ANS management updates from around the region, and what tools are available to resource managers to deal with climate change. Panelists will discuss tools that can adapt to a changing environment- specific to handling new threats and climatic events. Emily DeBolt (LGA) will provide updates from the Lake George Association AIS management plan. Eric Holmlund (Paul Smith's) will provide an overview of boat launch steward data for the past several years. Matt Probasco (VT DEC) will discuss the state of Vermont's Lake Steward program.